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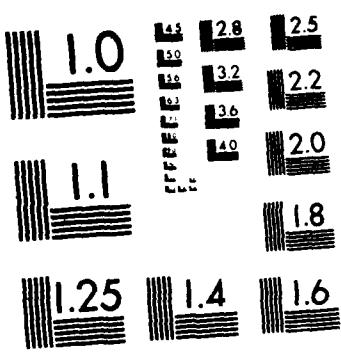
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~~HF MUF MODEL UNCERTAINTY ASSESSMENT
T.N. Roy and D.B. Sailors
Ocean and Atmospheric Sciences Division
Naval Ocean Systems Center
San Diego, CA 92152-5000~~

To assess the accuracy of MUF model prediction, a statistical analysis of observed oblique sounder median maximum observed frequencies (MOF) and predicted maximum usable frequencies (MUF) was conducted. A data base consisting of 13,054 hours of oblique sounder MOFs measured on 70 paths were compared against the predicted MUF values from MINIMUF-3.5, MINIMUF 85 and an unrelated MUF model, the HF Broadcast WARC Model (HFBC 84). The data was screened into subsets to determine the effect of particular paths, path length and orientation, season, month, latitude, sunspot number, diurnal trends, geographic region and sounder type. The accuracy of all three models was very close, with the MINIMUF-3.5 model having the lowest rms error of 4.44 MHz. MINIMUF 85 was next with an rms error of 4.58 MHz and HFBC 84 was last with an error of 4.67 MHz. Correlation was good for all three models. Coefficients were .824, .819 and .827 for MINIMUF-3.5, MINIMUF 85 and HFBC 84, respectively.

The primary difference between MINIMUF-3.5 and MINIMUF 85 appeared when detailed analysis of the accuracies was conducted. When the variation in error was noted as a function of season, sunspot number, or range, for instance, there was less variation in the accuracy of MINIMUF 85. In some cases, MINIMUF-3.5 would exhibit high error, and in other cases it would exhibit low error.

When the accuracy of the models was investigated as a function of mid-path local time a large diurnal error was found in all three models. In the case of the MINIMUF models, linear regression showed that the bias could be removed and the rms error be reduced. It also showed that the error is common to both MINIMUF models. Further investigation for path lengths less 4000 km, also showed that linear regression could reduce the rms error and remove the bias. This implies that the error in the models could be attributed to the $f_o F_2$ portion of the model. A method for improving this portion of the model is suggested.



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